0008336279 - Drawing available
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Optical film for controlling reflectance and transmission - comprises continuous and dispersed polymeric phases, which show refractive index mismatch along one axis and match along another
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Patent Family (15 patents, 72 countries)

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Alerting Abstract WO A1

An optical body comprises (a) a first phase; and (b) a second phase, which is co-continuous with the first phase along at least one axis. Both phases are polymeric and the refractive index difference between them is at least 0.05 along a first axis and less than 0.05 along a second axis.

USE - Used particularly as diffuse polarisers, but also low loss (non-absorbing) reflective polarisers or diffuse mirrors. The reflective polarisers are particularly useful in liquid crystal display panels. They may also be used as a thin IR sheet polariser. The polariser may be constructed out of polyethylene naphthalate (PEN) or similar materials, which are good UV absorbers.

ADVANTAGE - The refractive index mismatch between the 2 phases along the material's three-dimensional axes can be conveniently and permanently manipulated to achieve desired degrees of diffuse and specular reflection and transmission. Transmission and reflection properties can be controlled by changing the thickness of the optical body. The optical material is stable to stress, strain, temperature differences and electric and magnetic fields, and it has an insignificant level of iridescence. Co-continuous systems are frequently easier to process and may impart properties such as weatherability, reduced flammability, greater impact resistance and tensile strength, improved flexibility and superior chemical resistance. Interpenetrating polymer networks (IPN) are particularly useful in certain applications as they swell but do not dissolve in solvents and they show suppressed creep and flow compared to analogous non-IPN systems.